

Draft Environmental Assessment

City of Crockett Community Safe Room Project

HGMP-DR-1791-TX Project #297

Crockett, Houston County, Texas
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FEMA

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List of Acronyms

ACHP	Advisory Council on Historic Preservation
AnB	Annona loam
APE	Area of potential effects
BMPs	Best Management Practices
dB	decibels
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGP	Construction General Permit
DNL	Day Night Average Sound Level
EA	Environmental Assessment
EHP	Environmental Planning and Historic Preservation
EIS	Environmental Impact Statement
EO	Executive Order
EOID	Element Occurrence Records Identification Number
EOR	Element Occurrence Records
EPA	Environmental Protection Agency
EtB	Etoile loam
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
HMAP	Hazard Mitigation Action Plan
HMGP	Hazard Mitigation Grant Program
ISD	Independent School District
NDD	Natural Diversity Database
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
RCRA	Resource Conservation and Recovery Act
SaB	Sacul
SFHA	Special Flood Hazard Area
SHPO	State Historic Preservation Office
TCEQ	Texas Commission on Environmental Quality
TDEM	Texas Division of Emergency Management
THC	Texas Historical Commission
THPO	Tribal Historic Preservation Office
TPWD	Texas Parks and Wildlife Department

TxDOT	Texas Department of Transportation
UA	Urbanized Area
USCB	U.S. Census Bureau
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WoB	Woodtell

1. Introduction

The City of Crockett, through the Texas Division of Emergency Management (TDEM), has applied to the Federal Emergency Management Agency (FEMA) for Hazard Mitigation Grant Program (HMGP) funding for the construction of a community safe room to protect the local population from extreme wind events in Crockett, Houston County, Texas.

The Environmental Assessment (EA) includes a description of alternatives, an evaluation of the affected environment for the proposed action and alternative, environmental consequences and cumulative impacts of the proposed action and alternative. This EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, the President's Council on Environmental Quality regulations to implement NEPA (40 Code of Federal Regulations Parts 1500-1508), and FEMA's regulations implementing NEPA (44 CFR Part 10). FEMA is required to consider potential environmental impacts before funding or approving actions and projects. The purpose of this EA is to analyze the potential environmental impacts of the two alternatives. FEMA will use the findings in this EA to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

2. Purpose and Need

Through HMGP, FEMA provides grants to states and local governments to implement long-term hazard mitigation measures. The purpose of HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster. HMGP is authorized under Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

The City of Crockett is prone to tornadoes and other extreme wind events as described in the 2007 Houston County Hazard Mitigation Action Plan (HMAP). There are 19 tornado events in Houston County registered with the National Oceanic and Atmospheric Administration (NOAA) in records dating to 1951. Nine of these tornados occurred from 1994 to 2007 resulting in an occurrence rate of 0.75 events per year. This pattern of frequency constitutes a 'likely' probability of future occurrence according to the definitions from the State of Texas Mitigation

Handbook. The 2007 HMAP also describes three events that occurred across the county on the same date; April 4, 1997. On this date three tornadoes blew down trees, sent projectiles in through windows, uprooted cement power poles, and destroyed two barns. Two tornado events have impacted the county since the HMAP of 2007. In June of 2010 an F1 tornado split, fell, and uprooted trees, picked up and threw a 2,200 pound bull into an adjacent field, and damaged area roofing and one barn. On the same day and half an hour later, a second touchdown reported trees uprooted and damage was done to roofing and gutters on one home.

In extreme wind events where the threat affords little to no warning to allow the general population to evacuate the area of immediate impact, immediate life safety protection is needed. Protecting Crockett residents, general public, and students, faculty, and staff at the City of Crockett Independent School District (ISD) campus from the risk of tornadoes and other high wind events is a priority for the city.

Currently, no such safe room exists for the surrounding population. Existing construction has been built to code. Emergency procedures invoked upon the imminent threat of a tornado include sheltering in place in hallways of existing buildings that were built to code and do not offer the FEMA standard of near absolute protection.

Housing units and other structures within Houston County are at a medium to high vulnerability to impact from a tornado event. Typically the impact of a tornado is relatively indiscriminant, impacting structures and assets on a random basis. In addition, poorly constructed homes and mobile homes that are not secured to a concrete pad or other type of mooring are at a higher risk of damage from tornado events, though a direct hit by a tornado can cause significant damage to almost any structure within the county. There is also a medium to high risk of damage to people, private property, timber, and infrastructure throughout the county. This risk level is associated with a very high risk of injury or damage from a tornado along with a very low probability that a person or asset will actually be impacted by a tornado (HMAP, 2007).

To characterize risk to tornado impacts, the 2007 HMAP reviewed historic weather occurrences, public input, and input of the Hazard Mitigation Team. Tornadoes were assessed to place Houston County population in the moderate to high vulnerability bracket (Table 1).

Table 1. Vulnerability of Houston County to High Wind/Tornado Events

Vulnerability	Definition
High	People and facilities located in areas that have previously experienced impacts from hazards and/or in areas where impacts from hazards are possible and probable. Future damage to property and infrastructure is probable and/or a documented history of threat to public safety exists.
Moderate	People and facilities located in areas that have low levels of historic occurrence of impacts from hazard and/or in areas where impact is possible but not probable.
Low	Limited or no history of significant impacts to property, infrastructure and/or public safety.

Source: Houston County HMAP, 2007

3. Alternatives Considered

This section describes the alternatives that were considered in addressing the purpose and need. In the project's infancy, three alternatives were evaluated: construction of a new concrete dome multi-purpose safe room at the Crockett ISD campus; construction of a new metal shell multi-purpose safe room on the same site; and no action.

The proposed location is in the 1200 Block of Martin Luther King Jr. Blvd., in the City of Crockett. The City of Crockett was unable to identify any feasible alternative sites for the project which met the benefit/cost ratio of >1, as required under the HMGP program. This location is the only location in town that will provide such a ratio due to the fact that is in a location having the population densities of the Crockett ISD grades K-12, the Crockett State School grades K-12, Crockett Early Childhood Center for pre-K, and a residential development.

3.1 Alternatives Considered but Dismissed

Constructing a metal shell multi-purpose safe room at Crockett ISD was considered early in the scoping process. During investigation of this alternative, costs began to escalate. Heating and cooling costs of similar facilities ranged from \$30,000 to \$60,000 per year. Once the energy efficiency of the concrete structure was understood, the metal building became unrealistic and this alternative was not considered further.

Retrofitting an existing structure on campus was considered but not explored as a viable alternative. It was soon realized that no structure on campus offers the amount of useable floor space necessary to provide protection to the target population of those at the school and those living and working around the school.

3.2 Alternatives Evaluated

Two alternatives were evaluated for impacts to resources and community benefit: to construct a concrete dome safe room (Proposed Action) and to take no action.

The **Proposed Action Alternative** is to construct a concrete dome multi-purpose safe room. The project will be located in the 1200 block of Martin Luther King Jr. Blvd., Crockett, Texas 75835 (Latitude 31.30368; Longitude -95.4707; see Attachments A and H). The proposed site is a

mowed field, which is sometimes used as a temporary parking lot, that is bound by Martin Luther King Jr. Blvd. to the south and Darius Street to the east. The school campus is adjacent to the north and west. West Loop 304 bounds the school campus along the west side.

Site work will involve filling and compacting the building site, laying a storm drain system and installing utilities. Building construction will involve inserting the stem walls 30 feet into the ground, pouring the concrete slab, inflating the Airform, spraying the polyurethane foam to hold form, erecting the steel rebar, then spraying layer after layer of shotcrete. The product will be a 27,283 square foot concrete dome that will have an approximate maximum occupancy of 3,840 people during a high wind event. The scope of the project includes an adjacent parking area and driveways to provide for the anticipated ingress and egress of traffic flow during emergency events. The exact layout and orientation of the parking lots and driveways has not been determined at this stage of planning. However, the total area of impact will not exceed 1 acre. Please see Attachment A for an approximate site plan.

When not in use as a safe room, the concrete dome will serve as a multi-purpose facility for the students, faculty, staff of Crockett ISD as well as for the residents in the area. The facility will be host to graduation ceremonies and other special sporting, scholastic, and community events.

Under the **No Action Alternative**, nothing would be done to provide protection to the community during tornado and severe storm events. This alternative would result in potential loss of life of residents and emergency medical service providers and emergency management officials. This alternative continues to place the community at risk of tornado and high wind events.

4. Affected Environment and Impacts

This section describes the existing social, economic, and environmental setting for the proposed project. Potential impacts are described and mitigation measures to avoid potential impacts are included. A summary table of impacts and means to mitigate follow this section in Table 5.

Land within a two mile area immediately surrounding the proposed safe room location is developed. The Crockett ISD campus, a residential neighborhood development, the State School, three sports fields, two apartment complexes, local businesses, and all supporting infrastructure and roads exist in this area. The landscape within two miles is undulating to rolling as elevations range from 310 feet above sea level to 410.

4.1 Geology and Soils

The U.S. Department of Agriculture (USDA) Soil Map of Houston County describes parent material in Houston County to consist of unconsolidated sandy, loamy, and clayey sediments deposited by waters of the Eocene, Pleistocene, and Holocene geologic ages of the Tertiary and Quaternary Systems. Houston County is in the Coastal Plain physiographic region of Texas. All of the geological formations are sedimentary. The Cook Mountain Formation forms a band through the central part of the county. This formation is made up mostly of clayey and shaley deposits that are generally gypsiferous and sometimes calcareous. Soils that have formed in these sediments are common to the Cuthbert-Kirvin-Lilbert and Woodtell-Etoile general soil map units.

The Natural Resources Conservation Service (NRCS) Soil Survey of Houston County describes four soil types that are likely to occur within the project area (Table 2). The Woodtell (WoB), a very fine sandy loam, was mapped to occur within the project's footprint though three other types are mapped nearby and may occur on site as well (Attachment B).

Soils with a low shrink swell ratio may require less site preparation work and less soil compaction testing. The higher the sand content, the lower the shrink swell ratio will be. Woodtell soils are fine sands and are mapped to occur within the footprint.

Table 2. Map Unit Information for Houston County

Map Unit Symbol	Name	Description
WoB	Woodtell	Very fine sandy loam, Woodtell soils are found on very gently sloping, broad, smooth areas and strongly sloping side slopes.
SaB	Sacul	A fine sandy loam, Sacul soils are found on gently sloping, slightly concave head of drainage ways and side slopes immediately above drainage ways.
AnB	Annona loam	A well drained clayey, marine, and fluvial sediments from Pleistocene age marine, river, and stream deposits.
EtB	Etoile loam	A type of loam found in gently sloping upland landforms.

Source: USDA NRCS Soil Survey of Houston County

The Farmland Protection Policy Act (FPPA of 1981, P.L. 97-98 and amendments, 7 United States Code (USC) 420(b)) authorizes the NRCS to develop criteria for identifying the effects of federal programs on the conversion of farmland to non-agricultural uses. The FPPA states that federal agencies must “minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses...” WoB soils are the only mapped units in the project area and are not considered prime farmland soils.

No Action Alternative – Under the No Action Alternative, the proposed safe room site would continue to be used as a temporary parking lot. This use hampers the re-growth of vegetation and the already exposed soils would remain so, further promoting erosion. The No Action Alternative could have minor impacts to soils due to this erosion.

Proposed Action Alternative – Construction of a concrete dome will result in loss of permeable surface not to exceed 0.8 acres. The 27,283 square foot structure may require the removal of top

soil that will not pack well enough to support the weight of a concrete safe room of this size. The top soils may have to be removed and therefore impacted, however, no impacts beneath the top layers of soil are anticipated. Impacts to subsurface geology are not expected since excavation and compaction will not be to those depths. No adverse impacts to soils or prime or unique farmland are foreseen.

4.2 Air Quality

The Clean Air Act (CAA), which was last amended in 1990, requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for widespread pollutants from numerous and diverse sources considered harmful to public health and the environment. The CAA established two types of NAAQS, primary and secondary.

Primary air quality standards protect the health of sensitive populations including people with asthma, children, and older adults. Secondary air quality standards protect public welfare by promoting ecosystems health, preventing decreased visibility and damage to crops, vegetation, animals, and buildings. The EPA has set national ambient air quality standards (NAAQS) for the following six criteria pollutants: ozone (O₃), particulate matter (PM 2.5, PM10), nitrogen dioxide (NO₂), carbon monoxide (CO), sulfur dioxide (SO₂), and lead (Pb). According to the Texas Commission on Environmental Quality (TCEQ), Houston County and adjacent counties are in attainment, meaning criteria air pollutants do not exceed the NAAQS.

No Action Alternative – No effect on air quality is anticipated.

Proposed Action Alternative – No long term impacts to air quality are anticipated. To reduce temporary impacts, contractors would be required to water down construction areas as needed in order to mitigate excess dust spreading. To reduce emissions, vehicle running times on site would be kept to a minimum and engines would be properly maintained.

4.3 Water Quality and Quantity

The Clean Water Act (CWA) of 1977 established the surface water quality standards and the basic structure for the regulation of pollutant discharge into waters of the U.S. As authorized by the CWA, the National Pollutant Discharge Elimination System (NPDES) permit program

controls water pollution by regulating point sources that discharge pollutants into waters of the U.S.

The Trinity River bounds Houston County along the west and it is an approximate straight line distance of 12 miles from the proposed site. The project area is located in the Lower Trinity River Basin. Houston Lake is 10 miles west of the proposed location and is the nearest surface water. It is approximately a 1,282 acre lake. Houston Lake is TCEQ segment number 0813 and it supports its designated use of providing water for the cities of Crockett and Grapeland, as well as fishing and recreational activities. The Trinity River, Neches River, and numerous smaller streams, creeks, farm ponds, and lakes provide abundant water supplies for the county. Surface water areas that can be seen on the topographic contour map of the area are described on the National Wetland Inventory map and are discussed in section 4.4 Wetlands.

No Action Alternative- No direct permanent impacts on the surface water quality of the area are expected.

Proposed Action Alternative- The project area does not intersect and is not adjacent to any surface or ground water system. Under the Proposed Action Alternative there would be no direct permanent impacts on the surface water quality of the area. However, short term impacts to downstream surface waters, due to erosion of soil, are possible during construction.

Construction activities would require excavation. The total area of disturbance is expected to be less than 0.8 acres and is not a part of a larger common development. According to TCEQ, areas of disturbance of less than 1 acre that are not part of a larger common plan of development are not required to obtain coverage under the general permit TXR150000 of which a storm water pollution prevention plan (SWPPP) is an integral part. Top soil will be stabilized with a vegetative cover to minimize erosion.

On January 19, 2011, coordination letters were sent to the EPA and TCEQ. No responses have been received to date.

4.4 Wetlands

The portion of the Crockett campus where the proposed safe room would be located, is an upland area adjacent to a relict tributary of the Trinity River. A review of the U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory Map (Attachment C) and U.S. Geological Survey (USGS) topographic map (Attachment D) indicates the presence of wetlands one half mile to the north of the proposed site. This wetland area is non-tidal and permanently flooded by a man made barrier (wetland code PUBHh).

No Action Alternative- Lack of construction would consequently have no effect on the wetlands.

Proposed Action Alternative- This alternative would not have an impact on wetlands since the project area is not located in, near, or adjacent to any wetlands.

On January 19, 2011, a letter was sent to the U.S. Army Corps of Engineers (USACE) requesting project review and comment. In a March 7, 2011, response, USACE determined that this project will not involve activities subject to the requirements of Section 404 of the CWA or Section 10 of the Rivers and Harbors Act. Therefore, it will not require a USACE permit.

4.5 Floodplains

Executive Order (EO) 11988- Floodplain Management was issued in 1977 to eliminate the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative for locating a project outside of the floodplain. EO 11988 applies to federally-funded projects and directs agencies to consider alternatives to setting projects within a floodplain. FEMA's regulations in 44 CFR Part 9 implement EO 11988 for the agency. Flood Insurance Rate Maps (FIRM) delineate the regulatory 100-year floodplain for the National Flood Insurance Program (NFIP).

Special Flood Hazard Areas (SFHA) are flood hazard areas that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent

annual chance flood is also referred to as the base flood or 100-year flood. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are labeled Zone C or Zone X. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation moderate flood hazard areas, labeled Zone B or Zone X (shaded) are also shown on the FIRM, and are the areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood. FIRM number 480359-0003-C (September 30, 1980) indicates that the proposed project location lies in the Flood Zone C, which is out of the SFHA (Attachment E).

No Action Alternative- Lack of construction would consequently have no impact on floodplains.

Proposed Action Alternative- This alternative would result in no impacts to floodplains since the project area does not occur in a floodplain.

4.6 Threatened and Endangered Species and Critical Habitat

The Migratory Bird Treaty Act (MBTA) of 1918 provides international protection for migratory birds. The Act establishes federal responsibilities for the protection of migratory birds makes it illegal to pursue, hunt, take, capture, kill, or sell birds. The MBTA also makes it illegal to harass birds or disturb their nesting sites. The USFWS is responsible for administering and enforcing the MBTA.

The USFWS also has enforcement capabilities established by the Bald and Golden Eagle Protection Act of 1940, which prohibits "taking" of bald eagles, including their parts, nests, or eggs. The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

In the State of Texas, the USFWS with the assistance of the Texas Parks and Wildlife Department (TPWD) maintains a database of plant and animal species that are rare, threatened to become endangered, and endangered. Listed species were evaluated for the likelihood of occurrence of finding suitable habitat in the area of the project site. Federal and state listed threatened and endangered species, mapped critical habitat, and ecological resource maps were

evaluated and results summarized in Table 2. There is no critical habitat designated at the project site. A total of 20 federally or state threatened or endangered species and 4 rare (no state or federal status) species occur in Houston County (TPWD, 2011). Habitats listed for these species include: lake shores, coastlines, barrier islands, open pine woods, overgrown brush, tall grass prairie, rivers, bottomland hardwoods, and swamps.

Fifteen species of Texas breeding birds, including the Pine Warbler, Brown-headed Nuthatch and Red-cockaded Woodpecker nest in this region. The red-cockaded woodpecker is the only federally listed species in Houston County. Bachman's Sparrow nests in the longleaf pine uplands, while wintering Bald Eagles roost in undisturbed uplands near rivers and lakes. Mammals in the region include River Otter, Gray Squirrel, Flying Squirrel and even the Louisiana Black Bear (TPWD, 2002).

The Natural Diversity Database (NDD) was reviewed in February 2011 for possible Element Occurrence Records (EOR) associated with the Crockett quadrangle map. No species were reported as observed within the Crockett quadrangle which is a 6 by 8 mile area. Records were then searched for adjacent quadrangle maps and three species were reported: the Red-cockaded Woodpecker, the Louisiana Pine Snake, and a wildflower, the Texas trillium. The EOR results that were returned simply indicate that the species noted may have been observed in a 360 square mile area. More specific data was not available. There is no critical habitat designated at the project site. However, absence of information in an area does not mean absence of species occurrence.

The project site is a fenced-in mowed field within the Crockett ISD campus that is used for temporary parking. It is adjacent to the school campus housing grades K-12 in a residential neighborhood within the Crockett city limits. The site is in an urban area of Crockett.

Table 3 below summarizes the database results of the TPWD County-by-County Listing of listed species potentially occurring in Houston County.

Table 3. Federal and State Threatened and Endangered Species Potentially Occurring in Houston County

Species	Habitat	Likelihood of Occurrence
American Peregrine Falcon (<i>Falco peregrinus anatum</i>) ST, DL	Occupies wide range of habitats during migration, including urban, barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	Unlikely: Site 140 miles North of the Gulf of Mexico and nine miles from nearest lake shore. Possible occurrence in urban environment during migration.
Arctic Peregrine Falcon (<i>Falco peregrinus tundrius</i>) DL	Occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	Unlikely: Site 140 miles north of the Gulf of Mexico. Possible occurrence in urban environment during migration. Nine miles from nearest lake shore.
Bachman's Sparrow (<i>Aimophila aestivalis</i>) DL, ST	Open pine woods with scattered bushes and grassy understory in Pineywoods region, brushy or overgrown grassy hillsides, overgrown fields with thickets and brambles, grassy orchards; remnant grasslands in Post Oak Savannah region; nests on ground against grass tuft or under low shrub.	Unlikely: The project site is an open field within the Crockett ISD campus. The field is kept mowed and it is fenced in.
Bald Eagle (<i>Haliaeetus leucocephalus</i>) DL, ST	Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water	Unlikely: Nine miles from Houston County Lake; 11 miles from the Trinity River; and 29 miles from the Neches River.
Henslow's Sparrow (<i>Ammodramus henslowii</i>) LE, E	Wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along with vines and brambles; a key component is bare ground for running/walking	Unlikely: The project site is an open field within the Crockett ISD campus. The field is kept mowed and it is fenced in
Interior Least Tern (<i>Sterna antillarum athalassos</i>) DL, ST	Nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony	Unlikely: Unlikely: Nine miles from Houston County Lake; 11 miles from the Trinity River; and 29 miles from the Neches.
Peregrine Falcon (<i>Falco peregrinus</i>) DL, ST	See subspecies for habitat.	
Piping Plover	Wintering migrant along the Texas Gulf Coast;	Unlikely: Site 140 miles north of

(<i>Charadrius melodu</i>) LT, ST	beaches and bayside mud or salt flats	the Gulf of Mexico and over 100 miles from the closest estuary.
Red-cockaded Woodpecker (<i>Picoides borealis</i>) LE, E	Cavity nests in older pine (60+ years); forages in younger pine (30+ years); prefers longleaf, shortleaf, and loblolly	Unlikely: The project site is an open field within the Crockett ISD campus. The field is kept mowed and it is fenced in. Approximately 10 miles west of the Davy Crockett National Forest.
Wood Stork (<i>Mycteria americana</i>) T	Forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; mud flats and other wetlands, even those associated with forested areas	Unlikely: No wetlands are located in the proposed project location. Site 140 miles north of the Gulf of Mexico and over 100 miles from the closest estuary.
Black bear (<i>Ursus americanus</i>) T/SA; NL, ST	Bottomland hardwoods and large tracts of inaccessible forested areas; due to field characteristics similar to Louisiana Black Bear (LT, T), treat all east Texas black bears as federal and state listed Threatened	Unlikely: Crockett is less than 10 miles west of the Davy Crockett National Forest. East Texas contains approximately 12 million acres of forested private and public land, including four national forests and the Big Thicket National Preserve. This region is considered to be one of the next places in Texas for the continued slow, natural return of black bears (TPWD 2008). Bears are still rare in Texas and very few Texans have ever seen one here. Black bears are also normally shy and not aggressive to humans. This combination of factors makes it unlikely that you or someone you know will encounter one.
Louisiana black bear (<i>Ursus americanus luteolus</i>) LT, T	Possible as transient; bottomland hardwoods and large tracts of inaccessible forested areas	Unlikely: Not known to be found in Texas (TPWD 2009)
Plains spotted skunk (<i>Spilogale putorius interrupta</i>) T	Catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie	Unlikely: The project site is an open field within the Crockett ISD campus. The field is kept mowed and it is fenced in.
Rafinesque's big-eared bat (<i>Corynorhinus rafinesquii</i>) T	Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures.	Unlikely: The project site is an open field within the Crockett ISD campus. The field is kept mowed.
Red wolf (<i>Canis rufu</i>)	Extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as	Unlikely: Very rare species

LE, E	well as coastal prairies	
Southeastern myotis bat (<i>Myotis austroriparius</i>)	Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures	Unlikely: The project site is an open field within the Crockett ISD campus. The field is kept mowed.
Alligator snapping turtle (<i>Macrochelys temminckii</i>) ST	Perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation; may migrate several miles along rivers;	Unlikely: No wetlands are located in the proposed project location. Nine miles from Houston County Lake; 11 miles from the Trinity River; and 29 miles from the Neches.
Louisiana pine snake (<i>Pituophis ruthveni</i>) C, ST	Mixed deciduous-longleaf pine woodlands	Unlikely: The project site is an open field within the Crockett ISD campus. The field is kept mowed and it is fenced in.
Texas horned lizard (<i>Phrynosoma cornutum</i>) ST	Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky	Unlikely: Habitat not arid enough.
Timber/Canebrake rattlesnake (<i>Crotalus horridus</i>) ST	Swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay; prefers dense ground cover, i.e. grapevines or palmetto	Unlikely: No wetlands are located in the proposed project location. Not near a riparian zone. Ten miles from Davy Crockett National Forest. No ground cover.
Neches River rose-mallow (<i>Hibiscus dasycalyx</i>) C	Open marshy habitats in seasonally wet alluvial soils, most often near standing rather than flowing water	Unlikely: No wetlands are located in the proposed project location.
Texas three-birds orchid (<i>Triphora trianthophora var texensis</i>)	Base of short, shallow, intermittent drainage slope with high organic matter (leaf-litter mulch) in dense, mixed hardwood (Southern red oak, hickory) pine (Shortleaf) forest stand	Unlikely: No understory present.
Texas trillium (<i>Trillium texanum</i>)	In or along the margins of hardwood forests on wet acid soils of bottoms and lower slopes, strongly associated with forested seeps and baygalls	Unlikely: Site in open field.
Texas emerald dragonfly	East Texas pineywoods; springfed creeks and bogs; small sandy forested streams with moderate current	Unlikely: No wetlands are located in the proposed project location. Not near a riparian zone.

Source: County by County listing of Rare, Threatened, or Endangered Species potentially occurring in Houston County (TPWD, 2011).			
FE	Federal Endangered	FT/SA	Federal Threatened due to similarity of appearance
FT	Federal Threatened	NL	Not listed
FDL	Federal De-listed	"blank"	Rare, but with no regulatory listing status
FC	Federal Candidate	TPWD Status:	
PDL	Proposed De-listed	ST	State Threatened
FP/T	Federal Proposed Threatened	SE	State Endangered

No Action Alternative- No construction activity would result in no impacts to any listed species or their habitat.

Proposed Action Alternative- Based on the scope of work, on the habitat requirements for state and federally listed species, and on the habitat available at the project site, FEMA has determined that the proposed action will have no effect on listed species and would not adversely modify critical habitat. There is no critical habitat designated at the project site. In a response from TPWD dated March 1, 2011, it was stated that based on the project description, the Wildlife Habitat Assessment Program does not anticipate significant adverse impacts to rare, threatened or endangered species, or other fish and wildlife resources.

4.7 Historic Properties and Cultural Resources

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the effects of their actions on historic properties. Historic properties are defined as prehistoric or historic districts, sites, buildings, structures, or objects listed in the National Register of Historic Places (NRHP).

The Texas Historic Sites Atlas places historic districts, properties, and sites outside of the project area (Attachment F). No such resources are located within approximately one half mile of the proposed site on the Crockett ISD campus. Construction of the school campus began in 1965. Historic aerials dating back to 1960 shows no structures in the project area until the aerial image dated 1968 (Attachment G). Referring to the site vicinity map (Attachment H) it can be inferred that the first building constructed on campus was the original junior high school, which currently serves as the administration building.

The area of potential effect (APE) is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. Based on current land use, setting, scale, the nature of the project and long-term project effects, the APE is directly limited to the proposed project site, which includes the view shed of the surrounding buildings.

The Native American Consultation Database was accessed to determine whether tribal consultation would be necessary. No tribes were found to inhabit, have land areas, claims, or have areas of special interest listed in Houston County, Texas, therefore consultation with Tribes was not pursued.

No Action Alternative – No action would result in no impact on historic or archeological resources.

Proposed Action Alternative - There are no registered historic or archeological resources within the APE. A consultation letter, dated January 19, 2011, was submitted to the Texas Historical Commission (THC) requesting the agency's review and comments on the proposed project. On February 28, 2011, the State Historic Preservation Officer (SHPO) at the THC determined that no historic properties would be affected by the proposed project (see Attachment I). Based on the scope of work, research presented above on the project site, and correspondence with the SHPO, FEMA has determined that the Proposed Alternative will have no effect on historic properties.

Should any archeological deposits, Native American pottery, stone tools, bones, or human remains become exposed, the project shall be halted. The applicant shall stop all work immediately in the vicinity of the discovery and take reasonable measures to avoid or minimize harm to the finds. All archeological findings will be secured and access to the sensitive area restricted. The applicant will inform FEMA immediately and FEMA will consult with the SHPO or Tribal Historic Preservation Office (THPO) and Tribes. Work in the sensitive areas cannot resume until consultation is completed and the appropriate measures have been implemented in order to ensure that the project is in compliance with the NHPA.

4.8 Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, mandates that federal agencies identify and address environmental justice concerns, as appropriate. These concerns include any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations.

The City of Crockett has a population of approximately 7,200 individuals. The City of Crockett has a lower median household income than Houston County or the State of Texas. According to the U.S. Census Bureau (USCB) 2005-2009 American Community Survey 5-Year Estimates, the median income reported in the City of Crockett was \$25,417, with 38.2 percent of individuals living below the poverty level. The median household income reported in Houston County was \$40,333 with 27.7 percent of individuals living below the poverty level. The median household income in the State of Texas was \$48,199 with 16.8 percent of individuals living below the poverty level.

The ethnicity distributions are shown in the table below. Statistics for the City of Crockett were not specifically broken down in the USCB 2010 results, therefore the closest cities of comparable size were used in this comparison.

Table 4. Ethnicity Distributions

Ethnicity	City of Huntsville (%)	City of Lufkin (%)	Houston County (%)	State of Texas (%)
White	65.8	59.9	72.6	82.1
Black or African American	26.1	26.6	25.9	12.0
American Indian or Native Alaskan	0.3	0.3	0.3	0.8
Asian	1.1	1.4	0.4	3.6
Native Hawaiian or Other Pacific Islander	0.1	0	0.1	0.1
Hispanic or Latino Origin	16.2	17.6	10.5	36.9
Other	1.6	1.5	0.7	1.4

Source: USCB Factfinder 2010

No Action Alternative- This action would result in no disproportionate impacts to minority or low-income populations, but the residents in the project area would remain vulnerable to tornado hazards.

Proposed Action Alternative- The proposed action would not result in disproportionately high or adverse impacts to minority or low-income populations. The resident population of the City of Crockett and the surrounding service area would benefit from the life safety protection that would be provided by the safe room.

4.9 Noise

Noise is generally defined as unwanted sound. Sound is most commonly measured in decibels (dB) on the A-weighted scale, which is the scale most similar to the range of sound that the human ear can hear. The Day-Night Average Sound Level (DNL) is an average measure of sound. The DNL descriptor is accepted by federal agencies as a standard for estimating sound impacts and establishing guidelines for compatible land uses.

The Noise Control Act of 1972 and the Quiet Communities Act of 1978 identified noise levels for various areas according to the use of the area. Levels of 45 dB DNL are associated with indoor residential areas, hospitals and schools, whereas 55 dB DNL is identified for certain outdoor

areas where human activity takes place. Noise levels above these thresholds are identified as causing activity interference and annoyance. These levels are not single event, or "peak" levels. Instead, they represent averages of acoustic energy over periods of time such as 8 hours or 24 hours, and over long periods of time such as years. The proposed project is located within Crockett ISD facilities and adjacent to a residential development.

No Action Alternative- This action would involve no construction and therefore, there would be no impacts to noise levels.

Proposed Action Alternative- This action would result in temporary impacts to the adjacent school, a sensitive receptor, due to the potential use of an emergency siren that would be used to notify surrounding areas of the need to seek shelter in the event of a tornado.

In addition, temporary short-term increases in noise levels are anticipated during the construction period. To reduce noise levels during that period, construction activities would take place during normal business hours. Equipment and machinery installed at the proposed project site would meet all local, state, and federal noise regulations. A residential neighborhood is located within ¼ mile of the proposed location to the east, however outdoor noise levels are not expected to reach levels above 55 dB DNL.

4.10 Traffic

The City of Crockett is situated at the center of a network of state and federal Highways near the Piney Woods area of East Texas. Loop 304 encircles the city with approximately a three-mile diameter. The proposed project site is located in the southwestern quadrant of the Loop 304. Slow-moving construction traffic would be accessing the site via Loop 304 and Martin Luther King Jr. Blvd. The number of construction vehicles and the rate of interaction with normal highway traffic would be minimal.

No Action Alternative – This action would result in no construction and therefore, no impacts to surrounding traffic.

Proposed Action Alternative- This action would cause minor temporary increases in the volume of construction traffic on Loop 304 from the north and south as well as other local roads in the immediate vicinity of the proposed project site. The increase in construction traffic could potentially result in a slower traffic flow during the construction phase. Construction traffic will occur outside of known high traffic hours as much as possible. Only temporary impacts of this type are anticipated. To mitigate temporary impacts, construction vehicles and equipment will be stored on site during project construction, and appropriate signage would be posted on affected roadways.

Ultimately, vehicle traffic would increase at the proposed project site only during severe weather and other emergency events as residents from surrounding areas drive to the safe room. Vehicles would park primarily in the safe room parking lot. Once the lot is full, vehicles may need to park in the lots associated with the high school.

4.11 Public Service and Utilities

Existing utilities in the immediate vicinity will support the proposed action without having to reroute or extend the service areas of water, wastewater, or electricity. Public service and utilities needs of the proposed construction will need to support a displaced population; not new populations. No new users or waste producers will result from this project. The new facility will house a temporarily displaced population until the threat of tornado passes. The plumbing and electrical will be built to support the temporary sheltering needs of a temporarily displaced population; not a new population.

No Action Alternative- The no action alternative would have no impact on the existing public services and utilities.

Proposed Action Alternative- The proposed action alternative would have no impact on the existing public services and utilities. No new users or waste producers will add to the influent of the receiving treatment works facility or increase a load on the electrical service grid. The Proposed Action will temporarily house a displaced population. Existing utilities in the immediate vicinity will support the proposed action without having to reroute or extend the service areas of water, wastewater, or electricity.

4.12 Public Health and Safety

Several state and federal databases were searched for potential public health and safety concerns related to petroleum products and hazard waste. Reporting such quantities is required by the Resource Conservation and Recovery Act (RCRA). The RCRA gives the EPA the authority to control hazardous waste from the "cradle-to-grave." This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. The Corrective Action Program requires owners or operators of RCRA facilities (or treatment, storage, and disposal facilities) to investigate and cleanup contamination in order to protect human health and the environment. Relevant database research provided by GeoSearch on January 18, 2011 returned no locatable findings within a 1/8 mile of the proposed site (Attachment K).

The proposed site is located in the center of the Crockett ISD complex of buildings, parking and ball fields. According to the Future Land Use Plan for the City of Crockett (Attachment J), the proposed project site is zoned for two family residential and it is surrounded by zones for industrial, manufacturing, and varying residential density zones.

Children of all ages are within the immediate project area. Barriers and signs will be in place before the ground is broken, during construction, and until the official opening of the dual purpose community safe room.

No Action Alternative – This action would have no impact on the public health and safety in the community.

Proposed Action Alternative – Public health and safety will be of utmost concern at every phase of construction. Short-term safety risks to construction workers and the general public would be present during construction. To minimize risks to safety and human health, all construction activities will be performed using qualified personnel trained in the proper use of the appropriate equipment, including all appropriate safety precautions. The appropriate signage and barriers must be in place prior to construction activities to alert pedestrians and motorists of project activities. In accordance with RCRA, unusable equipment, debris and material shall be disposed of in an approved manner and location. In the event significant

items (or evidence thereof) are discovered during implementation of the project, applicant shall handle, manage, and dispose of petroleum products, hazardous materials and toxic waste in accordance to the requirements and to the satisfaction of the governing local, state and federal agencies. Public safety will be improved in the long run by providing a safe room for those in the area.

5. Summary

The following table presents a summary of effects and mitigation measures for each of the reasonable alternatives.

Table 5. Summary of Impacts and Mitigation Measures

Affected Environment	Impacts	Mitigation
Geology and Soils	Construction will cause a permanent loss of no more than 0.8 acres of permeable surface. The 27,283 square foot structure will require the removal of top soil that will not pack well enough to support the weight of a concrete safe room of this size. There will be no impacts beneath the top layers of soil; subsurface geology will not be impacted.	Top soil will be stabilized with a vegetative cover.
Air Quality	Emissions from fuel-burning internal combustion engines (e.g., heavy equipment and earthmoving machinery) could temporarily increase the levels of some of the criteria pollutants, including CO, NO ₂ , O ₃ , PM ₁₀ , and non-criteria pollutants such as volatile organic compounds.	Contractors would be required to water down construction areas as needed in order to mitigate excess dust spreading. To reduce emissions, vehicle running times on site would be kept to a minimum and engines would be properly maintained.
Water Quality and Quantity	No direct permanent impacts on water quality. Short term impacts to downstream surface waters due to erosion.	Top soil will be stabilized with a vegetative cover.
Wetlands	No effect	None

Affected Environment	Impacts	Mitigation
Floodplains	No construction will take place in or near the regulated floodplain. No effect	None
Threatened and Endangered Species Critical Habitat	No effect to endangered or threatened species or critical habitat.	None
Historic Properties and Cultural Resources	No historic properties would be affected.	Should any archeological deposits, Native American pottery, stone tools, bones, or human remains become exposed, the project shall be halted. The applicant shall stop all work immediately in the vicinity of the discovery and take reasonable measures to avoid or minimize harm to the finds. All archeological findings will be secured and access to the sensitive area restricted. The applicant will inform FEMA immediately and FEMA will consult with the SHPO or Tribal Historic Preservation Office (THPO) and Tribes. Work in the sensitive areas cannot resume until consultation is completed and the appropriate measures have been implemented in order to ensure that the project is in compliance with the NHPA.
Environmental Justice	No effect to minority or low-income populations. All populations would benefit from the life safety protection offered by the safe room.	None
Noise	Minor impacts to adjacent land. Emergency siren used to notify surrounding areas of need to seek shelter. Noise levels in and adjacent to the area will increase during construction.	To reduce noise levels during construction, activities would take place during normal business hours. Equipment and machinery installed at the proposed project site would meet all local, state, and federal noise regulations.

Affected Environment	Impacts	Mitigation
Traffic	Short-term, minor temporary increase in the volume of construction traffic on roads is anticipated though infrequent.	Construction traffic will occur outside of known high traffic hours. Construction vehicles and equipment would be stored on site during project construction and appropriate signage would be posted on affected roadways.
Public Service and Utilities	No new users or waste producers will add to the influent of the receiving treatment works facility or increase a load on the electrical service grid. The Proposed Action will temporarily house a displaced population.	None
Public Health and Safety	Short-term safety risks to construction workers and the general public would be present during construction. Public safety will be improved in the long run by providing a safe room for those in the area.	All construction activities will be performed using qualified personnel trained in the proper use of the appropriate equipment, including all appropriate safety precautions. The appropriate signage and barriers will be in place prior to construction activities to alert pedestrians and motorists of project activities. In accordance with RCRA, unusable equipment, debris and material shall be disposed of in an approved manner and location. In the event significant items (or evidence thereof) are discovered during implementation of the project, applicant shall handle, manage, and dispose of petroleum products, hazardous materials and toxic waste in accordance to the requirements and to the satisfaction of the governing local, state and federal regulations.

6. Cumulative Impacts

According to the Council on Environmental Quality's (CEQ) regulations, cumulative impacts represent the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless

of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7). In accordance with NEPA, and to the extent reasonable and practical, this EA considered the combined effect of the Proposed Action Alternative and other actions occurring or proposed in the vicinity of the proposed project site.

No known additional actions are occurring or proposed in the vicinity of the project area. The project area is already developed. Undeveloped areas in the project vicinity include a wooded area over three miles to the north of campus. The proposed project does not encourage additional development in the floodplain because the site is outside of it. No cumulative impacts are anticipated.

7. Agency Coordination, Public Involvement and Permits

The federal, state, and local agencies and offices or other stakeholders that were contacted and asked to review the project include: proposed project, map, and lay out was mailed to the State Historic Preservation Officer (SHPO) at the Texas Historical Commission (THC), Natural Resources Conservation Service (NRCS) State Office, U. S. Army Corps of Engineers (USACE) Galveston District, Environmental Protection Agency (EPA) Region 6, Texas Commission on Environmental Quality (TCEQ) – Region 10 Office, and the Texas Parks and Wildlife Department (TPWD). Responses were received from THC, NRCS, USACE, and TPWD each of whom stated that significant adverse impacts were not anticipated upon the resource of their jurisdiction. The outgoing letters and the agency response letters received are provided in Attachment I, titled “Agency Coordination.”

The City of Crockett will notify the public of the availability of the draft EA by issue of a public notice in a local newspaper. FEMA will conduct a 15-day public comment period once the City posts public notice. Any public comments received will be addressed in the Final EA.

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9. References

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